Education, Earnings, and Fixed-Term Contracts

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Abstract: We explore the relationship between education, earnings and fixed-term contracts using data from the 1997 British Social Attitudes Survey and the 1997 International Social Survey Programme. We find that workers employed under such contracts earn significantly lower wages than their 'permanent' contract counterparts, even after controlling for a plethora of personal and job characteristics. This may be indicative of wage discrimination against fixed-term contract employees. On the other hand, our results also highlight some benefits to fixed-term employment – such workers are relatively less likely to find work stressful and to return home from work exhausted. In addition, our results allude to possible asymmetries in the relationship between education and earnings across this two-tier system, with educational attainment playing a more prominent signaling role in the case of 'permanent' contract employees.

Key Words: Earnings, Education, Signalling and Fixed-Term Contracts
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Governments on both sides of the Atlantic have spent much of the last two decades extolling the virtues of enhanced labor market flexibility. One of the most conspicuous symptoms of this manifesto has been the growth in the use of 'fixed-term' employment contracts.[1] Such contracts are a barometer of underlying labour market flexibility, allowing entrepreneurial success (and failure) to proceed relatively unfettered by excessive bureaucratic and trade union interference.[2]

The economics literature has been somewhat remiss in ascertaining either the causes or the effects of fixed-term employment. One exception for the United States is Nollen (1996) who identifies two potential concerns regarding individuals employed under fixed-term contracts: Firstly, they tend to be lower paid than permanent or 'core' employees; and secondly, they tend to acquire less training, experience and career development and thereby fail to build-up their human capital to aid future employability. The latter concern is exacerbated since, on average, fixed-term employees were found to be younger and less well qualified than their permanent counterparts.

In sharp contrast the management literature has actively explored the relationship between employment contracts and employee attitudes. Feldman et al (1995), for example, show that the type of employment contract has a significant influence on workers' attitudes towards / satisfaction with their jobs, a key finding being that fixed-term employees are relatively less secure and optimistic about the future. The relationship between fixed-term employment and job satisfaction has also been explored extensively in the applied psychology literature – findings here have indicated that job satisfaction is a key determinant of the choice to pursue fixed-term employment [Ellingson et al (1998)].

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[1] Twenty per cent of job offers in the U.K. during the 1990s were for fixed-term contracts – over thirteen per cent for one year or less [Labour Market Trends (1999)]. The number of temporaries employed by staffing companies in the United States tripled between 1984 and 1994 [United States Bureau of Labor Statistics (1995)].

[2] Fixed-term contracts inevitably fall outside the ambit of statutory employment protection and thereby allow employers to expand and contract their workforce at will [Bentolila and Saint Paul (1994)].

In this paper we explore the relationship between education, earnings and fixed-term contracts using data from the 1997 British Social Attitudes Survey (BSAS) and the 1997 International Social Survey Programme (ISSP).[3] We focus in particular on two key issues: First, what 'type' of individual is likely to be employed under a permanent contract; and second, how are the wages of such individuals determined? Our results suggest that workers employed under fixed-term contracts tend to earn significantly lower wages than their permanently employed counterparts, even after controlling for a plethora of personal and job characteristics. On the other hand, our results also highlight some benefits to fixed-term employment with such workers being relatively less likely to find work stressful and to return home from work exhausted. They also allude to possible asymmetries in the role of education across this two-tier system, with educational attainment playing a more prominent signalling role in the case of 'permanent' contract employees.

Economic Considerations

It would seem indubitable that firms prefer fixed-term jobs and workers prefer permanent ones. Even in countries offering only impuissant employment protection, it is often prohibitively expensive to fire long-serving employees. Such workers are entitled to statutory redundancy pay and perhaps even compensation for unfair dismissal. In the absence of frictions such assignments from one side of the labour market to the other would have no bearing on Pareto optimality. In reality, a considerable portion of the employment relation's value-added may be swallowed up by the negotiation. It may therefore be sensible to employ a moving wall of emasculated fixed-term workers to buffer shocks in demand or productivity.

There is no reason, however, why workers should prefer fixed-term contracts. A permanent contract offers them all the benefits of a fixed-term one, as well as the option of continuing the relationship should they so desire. It would thus be assumed that fixed-term workers would demand some compensating differential for taking such precarious employment. And if they are supply

[3] A fixed term (permanent) contract is defined in both data sets as one with (without) a set time limit.

constrained in any way, then firms would be happy to pay such a premium. But the world is not simple, and labour markets can be particularly complex. And there are a number of reasons why fixed-term workers may not in fact earn more than their permanent counterparts.

The relative productivity of fixed-term workers is not obvious. Without the guarantee of a future career ladder within the firm, fixed-term workers may be reluctant to acquire specific human capital. Fixed-term workers will therefore tend to be those who do not envisage growing old within the firm – individuals, for example, anticipating a change in occupation or regional location. These could be young people, unsure of their career; females, anticipating a move out of the labour market to have children – or having had children, finding it hard to obtain a permanent job because of employer concerns about their reliability; older workers may also be less adverse to fixed-term jobs – they may have taken early retirement from a previous career, they may have paid off their mortgages and be more secure in terms of their capital position, and they may be less inclined to invest in human capital given their shorter period of return.

Even if fixed-term workers were to undertake similar investments in human capital as their permanently employed counterparts, question marks over their relative productivity remain. One can imagine two very different types of fixed-term jobs, attracting two very different types of workers. Some firms may employ low ability workers to insulate themselves from the trauma of market conditions. Other firms may employ workers they deem to be potentially highly able on 'probationary' fixed-term contracts, transferring the worker to a permanent contract if he/she performs to expectations [Loh (1994), Heather et al (1996), Wang and Weiss (1998)]. A classic example of this is the use of assistant, untenured professors in academia. In either scenario one would anticipate fixed-term workers being paid less than their permanent counterparts.[4]

[4] Abraham and Taylor (1996) and Houseman and Polivka (1999) make the further point that firms can hire temporary workers from 'temporary-help' supply firms. Hiring in this way can allow for lower wages rates in a two-tier wage structure can allow for economies of scale in screening and training temporary workers, or unpredictable changes in demand and may thus be associated with less job stability.

And there are other reasons why wages of fixed-term workers may be relatively low. For a number of reasons tenure-earning profiles are upward sloping. Lazear (1981) attributes this to efficiency wage considerations – later career rents are used to induce efficient early career performance. Booth and Frank (1996) attribute the profile to the last-in-first-out constitution of most unions and their consequent tendency to focus concern on relatively longer serving members and thus to negotiate contracts with steep returns to seniority. More generally, fixed-term workers may be an extreme case of outsiders, who receive a low wage compared to permanent workers. Such workers are likely to be relatively less attached to their firms and less receptive to any sociological gift exchange. On the other hand, they may have lower fallbacks and be thus more receptive to any instrumental efficiency wage considerations.

There is, however, a counter argument to suggest a premium to fixed-term work. If it is general human capital that fundamentally drives productivity then a vitae of successive fixed-term jobs are the key to high earnings. This is often seen in the high technology sector with information technology analysts being effectively self-employed.

Data and Methodology

Our data are derived from the 1997 British Social Attitudes Survey (BSAS) and the 1997 International Social Survey Programme (ISSP). The BSAS is part of a series of surveys initiated in 1983 by Social and Community Planning Research and funded by the Monument Trust. Additional contributions are also made by the Countryside Commission, the Department of the Environment, the ESRC, Marks and Spencer PLC, the Nuffield Foundation and Shell UK. The data are derived from a cross-sectional sample of individuals, aged 18 and over, living in private households whose addresses were on the electoral registrar.

The ISSP is a series of annual surveys covering topics important for social science research based on cross-national collaboration. It brings together pre-existing social science projects and

coordinates research agendas, thereby adding a cross-national, cross-cultural perspective to the constituent national studies. Driven by the absence of missing values, we focussed on thirteen of the thirty-four countries participating in the ISSP vis: West Germany, Britain, Italy, France, Norway, Sweden, Denmark, Canada, United States, Japan, Portugal, Switzerland and New Zealand.[5] Such an approach allows us to set the BSAS results within a broader, international context and, hence, to explore the generality of our findings.

Key summary statistics from the two data sources are presented in Tables 1 – 3. The BSAS data set out in Table 1 reinforces Nollen's (1996) concerns with the average hourly wage of permanent employees exceeding that of individuals employed under fixed-term contracts. It is also apparent that on average a permanent worker is more likely to be educated to degree level or to hold 'A' levels or 'good' GCSE's (grades A to C) as their highest educational qualification.[6] The situation is reversed, however, for further education and 'poor' GCSE's (grades below C). Average years of education are marginally higher for permanent employees who also tend, on average, to have more labour market experience.

The ISSP data in Table 2 also suggest that permanent workers enjoy higher levels of education, as measured by their highest educational certificates, and to exhibit slightly lower years of education and slightly higher labor market experience, than their fixed-term counterparts. Table 3 sets out the relative proportions of permanent and fixed-term employment in the various countries. Some very wide differences are apparent. Fixed-term contracts comprise less than twenty-five per cent of employment in Germany, Italy, Norway France, Denmark and Switzerland, but more than fifty per cent in the United States, Canada, Japan, and Britain. The interesting question is what drives these differences; are there demographic/attitudinal factors that correlate

[5] This pooled cross-section analysis is conducted with a slightly more limited range of explanatory variables. The main omissions here being information relating to firm size, ethnicity and the expectations of individuals over real wages and the number of individuals employed at their workplace.

[6] The GCSE and A level certificates are school examinations taken at the ages of sixteen and eighteen respectively.

with employment under a fixed term or permanent contract? And, if so, are these factors distributed uniformly across countries? To unravel these issues we turn to our empirical analysis.

We adopt a two-step approach: We first conduct probit analysis to investigate the different characteristics of workers employed under permanent and fixed-term contracts; we then investigate how the earnings of workers employed under each contract type are determined, focussing in particular on the roles of education and labor force experience. Our data are particularly useful in this endeavor. In addition to providing detailed labour market and employment information of individuals (such as education, firm size, labour market experience as well as personal and demographic characteristics) they also provide valuable information pertaining to individuals' attitudes towards their job. We are therefore able to explore the differences in attitudes and job satisfaction harbored by individuals employed under the two different types of contract. The relative optimism of each type of employee can be explored via questions relating to job security – individuals are asked how likely are they to lose their job and how easy would it be to find another job. Furthermore, individuals are also asked how their real wages and the number of employees at their firm are likely to change next year. Information is also gathered relating to employee behavior (such as the extent of absence behavior) and how their job affects their personal well being (e.g. do you find your job stressful, do you come home exhausted?). Finally, information relating to the relative importance of skills learnt during training, via formal education and via work experience is also given which provides an opportunity to further explore the role of formal education in wage determination.

Results

Who is Employed under a Permanent Contract?

Our probit analysis of the BSAS and ISSP data are set out in Tables 4 and 5 and 6 and 7 respectively. The samples comprise all employees with the dependent variable taking the value one

if the employee is employed on a permanent contract. The regressions do not say anything about causality. Instead they offer a compact method of cross-tabulating the incidence of permanent employment against personal characteristics.

Since we use the probit analysis to control for sample selection effects in our earnings regressions, we estimate three probit equations to underpin the three specifications of earnings that follow. Specification (i) includes highest educational certificates and years of education, as well as a host of personal characteristics. Specifications (ii) and (iii) omit years of education and highest educational certificates respectively.

The BSAS probit and marginal effects estimates (Tables 4 and 5) are very robust across the three specifications. It appears that individuals employed under permanent contracts are more concerned with job security, and are more satisfied with, but only marginally more optimistic about retaining, their job. Indeed, permanent employees tend to be rather pessimistic about future increases in the number of employees employed at their workplace. They are also more likely to return home from work exhausted and to absent from the workplace than fixed-term workers. Assuming there is an 'unacceptable' (vis. shirking) aspect to absence [Brown et al (1999)], then it might be assumed that permanent employees would be less likely to absent given their greater investment in firm specific capital and reliance on career ladders within the firm. On the other hand, the cost of dismissing such workers is high and a counter argument could be made that fixed-term workers would be more likely to absent. One might expect individuals employed under fixed-term contracts to be less likely to absent given that employers face relatively low firing costs in the case of these employees]. Finally, skills developed in training rather than those developed in formal education appear to be important for those employed under a permanent contract.

The ISSP results (Tables 5 and 6) are also very robust across the three specifications.[7] They suggest that individuals employed under a permanent contract feel very secure against job loss, a confidence that may be related to the finding that such employees 'only work as hard as they have to'. The results also suggest, however, that permanent employees are more likely than their fixed-term counterparts to find work stressful and to come home from work exhausted. Again, skills developed in training appear to exert a significant influence on the probability of being employed under a permanent contract. It is surprising to note that although permanent employees are more likely to be satisfied with their job, they are significantly less likely to be proud to work for their firm or to claim that they would turn down more money to stay with their firm. In contrast to the BSAS analysis, permanently employed workers are significantly more likely to be male, to be a member of a trade union, and to be employed in white-collar occupations, and significantly less likely to be employed on a part-time basis or within the public sector.

The estimated coefficients on the country dummy variables suggest that employees in Canada, the United States and Japan are significantly less likely, and employees in Germany, Italy, France, Norway, Portugal and Switzerland significantly more likely, to be employed under a permanent contract relative to British employees ceteris paribus.[8] It would therefore seem that there are specific country effects on the mix of permanent and fixed-term employment independent of the characteristics of the workers within the country.

Earnings and Contract Type

We now turn our attention to the influence of contract type on wages. Table 8 presents the results from estimating a Mincerian wage equation for all employees using the BSAS. The equation exhibits standard characteristics with years in the labour force impacting concavely on wages and educational attainment serving to increase wages. The significant and positive dummy variable on

[7] The questions relating to Great Britain for the ISSP are a subset of those posed in the 1997 BSAS. The sample and sample sizes for the two surveys are, however, quite different.

the permanent contract dummy variable suggests that, on average, fixed-term contract employees in Britain earn approximately 14% less than permanent employees of similar characteristics. Similar evidence for Spain is reported by Jimeno and Toharia (1993) and Alba-Ramirez (1994).

To explore the generality this finding we estimated similar wage equations for each of the other twelve countries included in our ISSP sample. In all cases the equations were well specified and exhibited standard characteristics in terms of experience and education. For brevity, we present in Table 9 only the estimated coefficients for the permanent contract dummy variables for each of the twelve regressions. The coefficients suggest that workers employed on fixed-term contracts in Germany, France, Canada, New Zealand, Sweden and Portugal earn relatively lower wages than their permanently employed counterparts – the extent of the permanent contract wage premium is particularly pronounced in Germany. Permanent employees in Japan and Norway, however, actually receive lower wages than their fixed-term contract counterparts ceteris paribus.

We explore the possibility that education and experience impact differently on the earnings of workers employed under permanent and fixed-term contracts by estimating separate BSAS earnings equations for each contract type – see Tables 10 and 11.[9] It is apparent from Table 10 that the standard concave relationship between wages and labour market experience prevails for those employed under permanent contracts. In addition, degree level and further education appear to be key determinants of the wages of such employees. The importance of past job experience as perceived by the respondent appears to augment wages whereas the importance of skills acquired through formal education and training appears to be insignificant in determining wages. The sample selection term (LAMBDA) is highly significant, suggesting that the correlates of the decision to enter a permanent contract are negatively related to the log hourly earnings of respondents – hence ignoring the selectivity issue here would imply a positive bias in earnings.

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[8] Note that the relatively higher proportions of workers employed on permanent contracts in Sweden and Denmark are insignificant once other factors are controlled for.

[9] The sample selection term (LAMBDA) is derived from the binomial probit analysis presented in Table 4.

The results for fixed-term contract employees (Table 11) also confirm the standard concave relationship between experience and earnings. The attainment of a degree and further education are also significantly positively related to earnings. Again, the importance of skills acquired via formal education or training is an insignificant determinant of wages. In contrast to permanent employees, however, the importance of past experience in the job appears to lower wages.

In specifications (i) and (ii), the estimated coefficients on all the educational attainment dummy variables are significantly larger in magnitude for permanent employees suggesting that educational attainment is more important in determining the wages of permanent employees.[10] Such results may suggest that educational attainment is a more important signal of ability for permanent than fixed-term employees.

Furthermore, for both types of employee the importance of skills developed at university, college or school does not appear to significantly affect wages – such a finding could be regarded as lending further support to the signalling rather than productivity enhancing role of education. In sum, the results suggest that asymmetries exist in the role of education in determining wages across this two-tier system of employment contracts.

To explore the generality of this finding we re-estimated the separate wage equations for each of the countries in our ISSP data set (recall Table 9) with the inclusion of three interaction terms between highest educational qualification and permanent contract.[11] The separate wage equations, in all cases, exhibited conventional characteristics and were well specified. It is apparent that there is a wage penalty to being a permanent worker in Germany, France, New Zealand Sweden and Portugal with at most primary education. There is a similar penalty to having at most secondary education in France and Sweden, but a premium to such education in Switzerland and Portugal.

[10] Indeed, imposing the five estimated coefficients from specification i (ii) for the fixed-term employees sample on the estimated wage equation for permanent employees led to a Wald Statistic of 19.20 (43.99) with five degrees of freedom which is significant at the 1% level, hence we can reject the hypothesis that the estimated coefficients are the same across the two sets of employees.

Most striking, there is a large wage premium to degree level education in all countries bar the United States and Sweden. These findings provide further evidence of asymmetries in the relationship between education and earnings across the two types of contract.

Conclusion and Policy Implications

Our findings suggest that individuals employed under fixed-term contracts in a number of countries receive lower wages than their permanent contract counterparts. Such a finding could be indicative of wage discrimination against fixed-term employees and may suggest that legal provisions are required to protect those employed under fixed-term contracts. Indeed, recent measures have been taken in Great Britain, for example, to reduce the qualifying period of service for unfair dismissal claims from two years to one year. It is apparent, however, that employers may respond to such legislation changes by reducing the length of fixed-term contracts thereby creating more insecurity for fixed-term employees.

In accordance with the findings of the management literature, our results indicate that individuals employed under fixed-term contracts are less satisfied with the job and more pessimistic about future levels of remuneration. From the perspective of the employer, such low levels of job satisfaction and morale may exert an adverse influence on productivity levels.

The decline in employer support for fixed-term contracts reported by Purcell et al (1999) ties in with our findings. Furthermore, the development of workfare rather than benefit programmes in the Great Britain may serve to stimulate fixed-term employment [see Dickens et al (2000)]. When assessing the benefits of implementing such policies, one clearly needs to ascertain the extent to which fixed-term employment is of a secondary nature. However, it is important to note that our results from both the BSAS and the ISSP suggest that individuals employed under fixed-term contracts are less prone to work related stress and exhaustion thereby indicating potential welfare benefits from such employment.

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[11] The number of observations precluded the estimation of separate earnings equations for each contract type.

Our results also suggest that asymmetries exist in the relationship between education and earnings across the two types of contract with educational attainment playing an important signalling role in the case of permanent contract employees.

Fixed-term contracts have important implications for both industrial relations and labour markets. They offer firms a significant degree of flexibility against shocks to demand or productivity. This flexibility, however, is not without cost. The relative productivity of fixed-term contract employees is not clear. Although our results allude to some possible welfare enhancing aspects of such employment, there are many reasons to assume that most employees would prefer the security of a permanent contract. Hopefully, our findings will serve to stimulate further research into this increasingly important, yet relatively under-researched, area of the labour market.

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Appendix

Table 1: Selected Summary Statistics: British Social Attitudes Survey, 1997

Variable	All Employees (N = 507)		Permanent Contract (N = 298)		Fixed-term Contract (N = 209)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Hourly Wage	8.268	5.87	8.932	6.07	7.436	5.50
Degree[12]	0.175	0.38	0.186	0.39	0.162	0.37
Further Education	0.174	0.38	0.165	0.372	0.184	0.39
A Level	0.135	0.34	0.150	0.36	0.117	0.32
GCSE (Grades A to C)	0.225	0.42	0.23	0.42	0.214	0.41
GCSE (Grades below C)	0.107	0.31	0.102	0.303	0.113	0.32
Years of Education	17.097	2.05	17.105	2.02	17.087	2.09
Years in Labour Force	22.057	11.79	22.384	11.62	21.65	12.00

Table 2: Selected Summary Statistics: International Social Survey Programme, 1997

Variable	All Employees (N = 8771)		Permanent Contract (N = 5733)		Fixed-term Contract (N = 3038)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Degree[13]	0.192	0.39	0.211	0.41	0.156	0.36
Secondary School Education	0.338	0.47	0.349	0.48	0.316	0.47
Primary School Education	0.092	0.29	0.092	0.29	0.092	0.29
Years of Education	12.267	3.52	12.229	3.46	12.339	3.64
Years in Labour Force	26.233	11.44	27.034	10.89	24.721	12.28
Germany	0.065	0.25	0.079	0.27	0.040	0.20
Great Britain	0.074	0.26	0.054	0.23	0.113	0.32
Italy	0.036	0.19	0.043	0.20	0.023	0.15
France	0.074	0.26	0.090	0.29	0.044	0.21
Norway	0.137	0.34	0.167	0.37	0.080	0.27
Sweden	0.092	0.29	0.086	0.28	0.103	0.30
Denmark	0.065	0.25	0.078	0.27	0.042	0.20
Canada	0.050	0.22	0.031	0.17	0.087	0.28
United States	0.092	0.29	0.052	0.22	0.168	0.37
Japan	0.051	0.22	0.034	0.18	0.083	0.28
Portugal	0.069	0.25	0.068	0.25	0.070	0.26
Switzerland	0.167	0.37	0.199	0.40	0.108	0.31
New Zealand	0.028	0.16	0.021	0.14	0.039	0.19
	1.000		1.000		1.000	

[12] Each educational certificate denotes the highest level of educational attainment.

[13] Each educational level denotes the highest level of educational attainment. The levels of educational attainment are specified at a more aggregated level given the differences in the education systems across the nations analysed.

Table 3: Selected Summary Statistics: International Social Survey Programme, 1997

Country	All Employees	Permanent Contract		Fixed-term Contract	
	Number	Number	Proportion	Number	Proportion
Germany	571	451	0.790	120	0.210
Great Britain	649	309	0.476	343	0.524
Italy	315	248	0.787	67	0.213
France	655	511	0.780	144	0.220
Norway	1201	964	0.803	237	0.197
Sweden	806	496	0.615	310	0.385
Denmark	571	450	0.788	121	0.212
Canada	441	179	0.406	262	0.594
United States	806	300	0.372	506	0.628
Japan	448	186	0.415	262	0.585
Portugal	597	393	0.658	204	0.342
Switzerland	1466	1123	0.766	343	0.234
New Zealand	245	121	0.494	124	0.506
	8771	5733	0.654	3038	0.346

Table 4: Probit Analysis: Who is Employed under a Permanent Contract?
Dependant Variable = Permanent Contract: British Social Attitudes Survey, 1997.

	Specification (i)		Specification (ii)		Specification (iii)	
Variable	Coef	T-Stat	Coef	T-Stat	Coef	T-Stat
Constant	-0.4698	-0.436	-1.8836	-3.414	-1.0392	-1.207
Index of how likely to lose your job	-0.1399	-1.787	-0.1369	-1.753	-0.1306	-1.690
Index of how likely to find another job	-0.0391	-0.581	-0.0367	-0.548	-0.0250	-0.380
Absence Index[14]	0.0491	3.156	0.0498	3.185	0.0479	3.120
Job security being important to you index	0.1356	2.140	0.1359	2.148	0.1377	2.201
Only Work as hard as I have to	-0.1354	-0.535	-0.1344	-0.533	-0.1234	-0.496
Come home exhausted	0.2658	2.766	0.2485	2.612	0.2422	2.555
Find work stressful	0.0570	0.622	0.0666	0.733	0.0589	0.654
Uses past work experience in job	-0.0914	-0.568	-0.1040	-0.650	-0.1015	-0.639
Educational Skills Important[15]	-0.3113	-1.982	-0.3180	-2.025	-0.3010	-1.950
Training Skills Important[16]	0.5158	2.550	0.5316	2.638	0.5478	2.784
Good Management-Employee Relationship	0.0616	0.362	0.0383	0.226	0.0361	0.216
Job Satisfaction index	0.1460	2.576	0.1463	2.583	0.1360	2.429
Proud to be working for my firm	0.0989	0.348	0.1006	0.356	0.0958	0.340
Expect real wages to increase next year	0.2483	1.329	0.2383	1.283	0.2356	1.285
Expect nos. of employees to increase next year	-0.3777	-2.044	-0.3573	-1.950	-0.3766	-2.066
Work place is well run	-0.1874	-1.130	-0.1740	-1.052	-0.1584	-0.973
Would turn down more money to stay	-0.8877	-2.186	-0.8487	-2.098	-0.7468	-1.871
Degree	0.5150	1.415	0.1679	0.596	-	-
Further Education	-0.0361	-0.132	-0.1691	-0.656	-	-
A level	0.5205	1.866	0.4163	1.542	-	-
GSCE (Grades A to C)	0.2201	0.959	0.1825	0.801	-	-
GSCE (Grades below C)	0.0902	0.358	0.0664	0.264	-	-
Male	0.2509	1.509	0.2458	1.484	0.2392	1.467
White	0.1205	0.399	0.1528	0.507	0.1610	0.536
Married	-0.1276	-0.874	-0.1319	-0.906	-0.1190	-0.825
Years in Labour Force	0.0089	0.415	0.0103	0.480	0.0036	0.170
Years in Labour Force^2	-0.0001	-0.183	-0.0001	-0.086	-0.0001	-0.020
Years of Education	-0.0849	-1.522	-	-	-0.0361	-0.899
Trade Union Member	0.0020	0.013	0.0176	0.111	-0.0093	-0.060
Firm Size: 25 < n < 99	0.0303	0.178	0.0320	0.188	0.0334	0.199
Firm Size: 100 < n < 499	0.3527	1.857	0.3506	1.849	0.3269	1.738
Firm Size: n > 500	0.3202	1.532	0.3022	1.453	0.3156	1.534
Part-Time	-0.2538	-1.211	-0.2689	-1.284	-0.2917	-1.409
Public Sector	-0.0152	-0.092	-0.0279	-0.168	0.0246	0.150
Professional	0.4121	1.281	0.3392	1.069	0.3958	1.256
Manager/Administrator	0.0333	0.150	0.0315	0.143	0.0542	0.253
White Collar (Clerical & sales)	0.1349	0.794	0.1158	0.686	0.1171	0.713
Log likelihood	-258.2878		-259.4594		-262.4358	
Restricted Log Likelihood	-343.5734		-343.5734		-343.5734	
Chi Square Statistic	170.5712 $_{37\,df}$		168.2279 $_{36\,df}$		162.2752 $_{32\,df}$	
Psuedo R^2	0.5770		0.5741		0.5651	
Sample Size	507		507		507	

[14] The absence index is constructed from a question asking individuals to indicate in which group their number of days absent lies. The midpoints of each group were then used to construct the index of absence behaviour. The values are as follows; zero days, 2.5 days, 8 days, 15 days and 25 days. The other indices used in the above analysis are based on five point scales with 5 being the highest level.

[15] 'Skills developed at school, college or university important in job.'

[16] 'Skills developed in training are important in job.'

Table 5: Marginal Effects: Who is Employed under a Permanent Contract?[17]

Dependant Variable = Permanent Contract: British Social Attitudes Survey, 1997

Variable	Specification		
	(i)	(ii)	(iii)
Constant	-0.1829	-0.7335	-0.4048
Index of how likely you are to lose your job	-0.0544	-0.0533	-0.0509
Index of how likely you are to find another job	-0.0152	-0.0143	-0.0098
Absence Index	0.0191	0.0194	0.0187
Job security being important to you index	0.0528	0.0529	0.0536
Only Work as hard as I have to	-0.0527	-0.0523	-0.0481
Come home exhausted	0.1035	0.0968	0.0943
Find work stressful	0.0222	0.0259	0.0229
Uses a lot/almost all past work experience in job	-0.0356	-0.0405	-0.0395
Skills developed at school/college/university important in job	-0.1211	-0.1238	-0.1172
Skills developed in training are important in job	0.2008	0.2070	0.2134
Good relations between managers & employees	0.0240	0.0149	0.0141
Job Satisfaction index	0.0568	0.0570	0.0530
Proud to be working for my firm	0.0385	0.0391	0.0373
Expect real wages to increase next year	0.0966	0.0928	0.0918
Expect number of employees to increase next year	-0.1470	-0.1391	-0.1467
Work place is well run	-0.0729	-0.0678	-0.0617
I would turn down more money to stay	-0.3455	-0.3305	-0.2909
Degree	0.2005	0.0654	-
Further Education	-0.0140	-0.0659	-
A level	0.2026	0.1621	-
GSCE (Grades A to C)	0.0857	0.0711	-
GSCE (Grades below C)	0.0351	0.0258	-
Male	0.0976	0.0957	0.0932
White	0.0469	0.0595	0.0627
Married	-0.0497	-0.0513	-0.0464
Years in Labour Force	0.0035	0.0034	0.0014
Years in Labour Force^2	-0.0001	-0.0001	-0.0001
Years of Education	-0.0330	-	-0.0141
Trade Union Member	0.0008	0.0068	-0.0036
Firm Size: 25 < n < 99	0.0118	0.0125	0.0130
Firm Size: 100 < n < 499	0.1373	0.1365	0.1273
Firm Size: n > 500	0.1246	0.1177	0.1229
Part-Time	-0.0988	-0.1047	-0.1136
Public Sector	-0.0059	-0.0108	0.0096
Professional	0.1604	0.1321	0.1542
Manager/Administrator	0.0130	0.0123	0.0211
White Collar (Clerical & sales)	0.0525	0.0451	0.0456

[17] The Marginal effects were calculated at the means of the explanatory variables.

Table 6: Probit Analysis: Who is Employed under a Permanent Contract?

Dependant Variable = Permanent Contract: International Social Survey Programme, 1997

Variable	Specification (i) Coef	T-Stat	Specification (ii) Coef	T-Stat	Specification (iii) Coef	T-Stat
Constant	-1.8801	-10.952	-1.684	-11.637	-1.8905	-11.213
Index of how likely to lose job	-0.0963	-7.688	-0.0960	-7.669	-0.0962	-7.688
Index of how likely to find another job	0.0061	0.447	0.0049	0.360	0.0066	0.489
Absence Index	-0.0020	-0.751	-0.0021	-0.782	-0.0022	-0.830
Job security Importance index	0.0035	0.190	0.0011	0.058	0.0043	0.231
Only Work as hard as I have to	0.0935	1.936	0.0884	1.833	0.0928	1.922
Come home exhausted	0.0956	4.878	0.0940	4.803	0.0948	4.839
Find work stressful	0.0904	4.647	0.0908	4.672	0.0907	4.663
Uses past work experience in job	0.0603	1.608	0.0646	1.725	0.0595	1.587
Educational Skills Important	0.0495	1.396	0.0566	1.607	0.0465	1.317
Training Skills Important	0.2622	5.900	0.2649	5.965	0.2673	6.022
Good mang-emp relations	-0.0220	-0.610	-0.0222	-0.613	-0.0211	-0.585
Job Satisfaction index	0.1566	12.062	0.1556	11.998	0.1561	12.038
Proud to be working for my firm	-0.0753	-2.089	-0.7404	-2.054	-0.0757	-2.100
Would turn down more money to stay	-0.1442	-3.582	-0.1434	-3.563	-0.1441	-3.581
Degree	-0.0082	-0.147	0.0414	0.813	-	
Secondary Education	0.0773	1.768	0.0825	1.893	-	
Primary Education	-0.1083	-1.729	-0.1347	-2.193	-	
Male	0.0762	2.316	0.0762	2.317	0.0740	2.253
Married	0.0154	0.455	0.0190	0.564	0.0133	0.393
Years in Labour Force	0.0526	8.854	0.0554	8.735	0.0569	8.974
Years in Labour Force^2	-0.0008	-7.433	-0.0008	-7.489	-0.0009	-7.644
Years of Education	0.0139	2.133	-		0.0152	2.670
Trade Union Member	0.2221	5.812	0.2235	5.850	0.2236	5.857
Part-Time	-0.4008	-8.566	-0.3998	-8.548	-0.4008	-8.570
Public Sector	-0.1019	-2.625	-0.0925	-2.399	-0.0988	-2.552
Professional	0.1300	2.526	0.1493	2.950	0.1232	2.418
Manager/Administrator	0.3707	4.555	0.3862	4.767	0.3643	4.494
White Collar Clerical and Sales	0.2118	4.079	0.2162	4.168	0.2204	4.253
Germany	0.0425	4.552	0.4173	4.473	0.3862	4.256
Italy	0.5069	4.976	0.5015	4.925	0.5225	5.160
France	0.5141	6.096	0.5198	6.170	0.5295	6.398
Norway	0.2493	3.100	0.2361	2.945	0.2551	3.221
Sweden	-0.0586	-0.687	-0.0606	-0.710	-0.0675	-0.803
Denmark	0.1047	1.084	0.0878	0.912	0.0997	1.084
Canada	-0.7060	-7.529	-0.6955	-7.431	-0.7101	-7.639
United States	-0.5964	-6.404	-0.5812	-6.263	-0.5645	-6.219
Japan	-0.4516	-5.090	-0.4403	-4.971	-0.4366	-5.068
Portugal	0.2041	2.404	0.1673	2.014	0.1800	2.152
Switzerland	0.2580	3.079	0.2281	2.762	0.2913	3.717
New Zealand	0.0476	0.425	0.0457	0.408	0.0506	0.452
Log likelihood	-4563.784		-4565.149		-4568.211	
Restricted log likelihood	-5658.783		-5658.783		-5658.783	
Chi Square Statistic	2189.998 $_{40\ df}$		2187.270 $_{39\ df}$		2181.145 $_{37\ df}$	
Psuedo R^2	0.5069		0.5065		0.5061	
Sample Size	8771		8771		8771	

Table 7: Marginal Effects: Who is Employed under a Permanent Contract?

Dependant Variable = Permanent Contract: International Social Survey Programme, 1997

Variable	Specification		
	(i)	(ii)	(iii)
Constant	-0.6793	-0.6084	-0.6833
Index of how likely you are to lose your job	-0.0348	-0.0347	-0.0348
Index of how likely you are to find another job	0.0022	0.0018	0.0024
Absence Index	-0.0007	-0.0008	-0.0008
Job security being important to you index	0.0013	0.0004	0.0015
Only Work as hard as I have to	0.0338	0.0320	0.0335
Come home exhausted	0.0345	0.0340	0.0343
Find work stressful	0.0327	0.0328	0.0328
Uses a lot/almost all past work experience in job	0.0218	0.0233	0.0215
Skills developed at school/college/university important in job	0.0179	0.0205	0.0168
Skills developed in training are important in job	0.0947	0.0957	0.0966
Good relations between managers & employees	-0.0080	-0.0080	-0.0076
Job Satisfaction index	0.0566	0.0562	0.0564
Proud to work for firm	-0.0272	-0.0268	-0.0274
Would turn down more money to stay	-0.0521	-0.0518	-0.0521
Degree	-0.0030	0.0149	-
Secondary Education	0.0279	0.0298	-
Primary Education	-0.0391	-0.0487	-
Male	0.0275	0.0275	0.0268
Married	0.0056	0.0069	0.0048
Years in Labour Force	0.0203	0.0200	0.0206
Years in Labour Force^2	-0.0003	-0.0003	-0.0003
Years of Education	0.0050	-	0.0055
Trade Union Member	0.0803	0.0808	0.0808
Part-Time	-0.1448	-0.1445	-0.1449
Public Sector	-0.0368	-0.0334	-0.0357
Professional	0.0469	0.0539	0.0445
Manager/Administrator	0.1339	0.1395	0.1317
White Collar Clerical & sales	0.0765	0.0781	0.0796
Germany	0.1536	0.1508	0.1396
Italy	0.1831	0.1812	0.1888
France	0.1858	0.1878	0.1914
Norway	0.0901	0.0853	0.0922
Sweden	-0.0212	-0.0219	-0.0244
Denmark	0.0378	0.0317	0.0360
Canada	-0.2551	-0.2513	-0.2567
United States	-0.2155	-0.2100	-0.2040
Japan	-0.1632	-0.1591	-0.1578
Portugal	0.0738	0.0605	0.0651
Switzerland	0.0932	0.0824	0.1053
New Zealand	0.0172	0.0165	0.0183

Table 8: Hourly Wages and Fixed-term Contracts

Dependent Variable = Log Hourly Wage: British Social Attitudes Survey 1997 (Sample = All Employees)

	Specification (i)		Specification (i)		Specification (i)	
Variable	Coef.	T-Stat.	Coef.	T-Stat.	Coef.	T-Stat.
Constant	0.8052	2.399	1.2236	11.584	0.1113	0.435
Permanent Contract	0.1421	2.802	0.1394	2.750	0.1435	2.796
Years in Labour Force	0.0256	3.623	0.0251	3.558	0.0259	3.637
Years in Labour Force^2	-0.0005	-3.343	-0.0005	-3.410	-0.0005	-3.308
Years of Education	0.0257	1.313	-		0.0733	5.191
Degree	0.4223	3.447	0.5257	5.597	-	
Further Education	0.3491	3.810	0.3859	4.421	-	
A level	0.1940	2.054	0.2246	2.451	-	
GSCE Grades A to C	0.0756	0.935	0.0858	1.065	-	
GSCE Grades below C	0.0556	0.608	0.0631	0.691	-	
Uses past work experience in job	0.0695	1.203	0.0755	1.312	0.0722	1.235
Education Skill Important	0.0236	0.419	0.0250	0.444	0.0646	1.149
Training Skills Important	0.0592	0.876	0.0550	0.814	0.0721	1.060
Professional	0.1541	1.404	0.1824	1.694	0.2065	1.873
Manager/Administrator	0.3641	4.762	0.3679	4.813	0.4477	5.955
White Collar Clerical & sales	-0.0080	-0.142	0.0002	0.003	0.0299	0.534
F-Statistic	13.49 15 $_{491\ df}$		14.31 14 $_{492\ df}$		17.58 10 $_{496\ df}$	
Mean Log Hourly Wage	1.9352		1.9352		1.9352	
Adjusted R^2	0.2702		0.2691		0.2468	
Sample Size	507		507		507	

Table 9: Hourly Wages and Fixed-term Contracts

Dependent Variable = Log Hourly Wage: International Social Survey Programme 1997 (Sample = All Employees)

Reported Results: Estimated Coefficient of the Permanent Contract Dummy Variable

	Specification (i)		Specification (i)		Specification (i)	
Country	Coef.	T-Stat.	Coef.	T-Stat.	Coef.	T-Stat.
Germany	0.2527	5.318	0.2551	5.342	0.2504	5.287
France	0.1529	3.189	0.1758	3.634	0.1347	2.753
United States	0.0080	0.130	0.0096	0.156	0.0108	0.175
Canada	0.1416	2.004	0.1450	2.056	0.1499	2.121
Japan	-0.1688	-2.744	-0.1659	-2.702	-0.1773	-2.877
Italy	-0.0614	-0.532	-0.0488	-0.418	-0.0783	-0.682
New Zealand	0.2094	2.228	0.2063	2.206	0.1690	1.734
Switzerland	0.0001	0.020	0.0001	0.024	0.0001	0.698
Denmark	-0.0233	-0.478	-0.0346	-0.701	0.0213	0.410
Norway	-0.0001	-2.808	-0.0001	-3.058	-0.0001	-2.809
Sweden[18]	0.3824	2.801	0.3786	2.775	0.3819	2.799
Portugal	0.1187	2.815	0.1518	3.398	0.1115	2.605

[18] Given data availability we used monthly rather than hourly wages for Sweden.

Table 10: Mincerian Wage Equation for Permanent Employees

Dependant Variable = Log Wage: British Social Attitudes Survey 1997

	Specification (i)		Specification (i)		Specification (i)	
Variable	Coef.	T-Stat.	Coef.	T-Stat.	Coef.	T-Stat.
Constant	1.0623	2.428	1.5491	8.576	0.5574	1.533
Years in labour force	0.0191	2.037	0.0186	1.971	0.0175	1.809
Years in labour force^2	-0.0003	-1.861	-0.0004	-1.922	-0.0003	-1.655
Years of Education	0.0289	1.143	-		0.0698	3.619
Degree	0.4218	2.637	0.5303	4.142	-	
Further Education	0.3883	3.066	0.4252	3.462	-	
A level	0.2068	1.614	0.2367	1.903	-	
GSCE Grades A to C	0.1028	0.917	0.1108	0.988	-	
GSCE Grades below C	0.1793	1.385	0.1919	1.483	-	
Uses past work experience in job	0.1903	2.621	0.1962	2.698	0.1933	2.577
Education Skills Important	0.0402	0.570	0.0421	0.594	0.0886	1.246
Training Skills Important	-0.0585	-0.568	-0.0707	-0.682	-0.0220	-0.209
Professional	0.1103	0.799	0.1429	1.064	0.1228	0.866
Manager/Administrator	0.3553	3.492	0.3637	3.572	0.4186	4.109
White Collar Clerical & sales	0.0316	0.422	0.0415	0.554	0.0474	0.618
LAMBDA	-0.2606	-2.151	-0.2775	-2.266	-0.3129	-2.470
F-Statistic	8.4615 $_{282\ df}$		9.0714 $_{283\ df}$		11.0910 $_{287\ df}$	
Mean Log Hourly wage	2.0317		2.0317		2.0317	
Adjusted R^2	0.2735		0.2757		0.2536	
Sample Size	298		298		298	

Table 11: Mincerian Wage Equation for Fixed-term Contract Employees

Dependant Variable = Log Wage: British Social Attitudes Survey 1997

Variable	Specification (i)		Specification (ii)		Specification (iii)	
	Coef.	T Stat.	Coef.	T Stat.	Coef.	T Stat.
Constant	0.7421	1.381	1.2452	8.180	-0.0914	-0.241
Years in labour force	0.0326	3.031	0.0320	2.973	0.0347	3.181
Years in labour force^2	-0.0006	-2.734	-0.0006	-2.765	-0.0006	-2.717
Years of education	0.0314	0.986	-		0.0826	3.915
Degree	0.3651	1.807	0.5069	3.568	-	
Further Education	0.3001	2.232	0.3516	2.822	-	
A level	0.1105	0.747	0.1461	1.017	-	
GSCE Grades A to C	0.0250	0.212	0.0417	0.358	-	
GSCE Grades below C	-0.1019	-0.802	-0.1010	-0.794	-	
Uses past work experience in job	-0.1771	-1.865	-0.1730	-1.823	-0.1605	-1.667
Education Skills Important	0.0665	0.641	0.0774	0.749	0.1097	1.063
Training Skills Important	0.1462	1.096	0.1293	0.968	0.1431	1.054
Professional	0.1070	0.562	0.1259	0.667	0.2033	1.072
Manager/Administrator	0.3980	3.327	0.3935	3.283	0.4721	4.043
White Collar Clerical & sales	-0.0592	-0.696	-0.0506	-0.596	-0.0129	-0.143
LAMBDA	0.0143	0.123	0.0279	0.240	-0.0092	-0.078
F-Statistic	4.6515 $_{193\ df}$		4.9214 $_{194\ df}$		5.9910 $_{198\ df}$	
Mean Log Hourly wage	1.7977		1.7977		1.7977	
Adjusted R^2	0.2081		0.2088		0.1934	
Sample Size	209		209		209	

Table 12: Hourly Wages and Fixed-term Contracts

Dependent Variable = Log Hourly Wage: International Social Survey Programme 1997 (Sample = All Employees)
Reported Results: Estimated Coefficient of the Interaction Terms between Highest level of Education and the Permanent Contract Dummy Variable[19]

Country	Prim. Ed.*Permanent		Second. Ed.*Permanent		Degree*Permanent	
	Coef.	T Stat.	Coef.	T Stat.	Coef.	T Stat.
Germany	-0.1838	-3.583	-0.0153	-0.191	0.3945	6.114
France	-0.3804	-3.252	-0.1719	-3.262	0.3662	6.281
United States	-0.1670	-0.319	-0.0723	-0.756	0.2418	1.375
Canada	0.1286	0.312	0.1988	1.550	0.3846	2.528
Japan	-0.2633	-1.520	-0.2035	-1.552	0.2921	2.021
Italy	0.0209	0.088	0.0610	0.529	0.5344	2.747
New Zealand	-0.8169	-1.865	-0.0536	-0.345	0.4254	3.018
Switzerland	-	-	0.2325	3.723	0.4836	7.218
Denmark	-	-	0.0815	1.360	0.2245	3.535
Norway	0.2827	1.646	0.0011	0.016	0.2319	3.170
Sweden	-0.5689	-2.478	-0.4659	-2.080	-0.2030	-0.902
Portugal	-0.2135	-3.287	0.4320	4.940	0.8849	9.244

[19] The earnings equations adopt the form of specification (i) in Table 8.